

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
10 February 2005 (10.02.2005)

PCT

(10) International Publication Number  
**WO 2005/012193 A1**

(51) International Patent Classification<sup>7</sup>: **C02F 5/14**

(21) International Application Number:  
**PCT/GB2004/003197**

(22) International Filing Date: **23 July 2004 (23.07.2004)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:  
**0317208.7 23 July 2003 (23.07.2003) GB**

(71) Applicant (for all designated States except US): **RHODIA CONSUMER SPECIALTIES LIMITED [GB/GB];** Oak House, Reeds Crescent, Watford, Hertfordshire WD24 4QP (GB).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **TALBOT, Robert, Eric [GB/GB];** 3 Meriden Close, Cannock, Staffordshire

**WS11 1QG (GB). JONES, Christopher, Raymond [GB/GB];** 110 Sutherland Road, Cheslyn Hay, West Midlands WS6 7BS (GB). **HILLS, Emma [—/GB];** 1A Bentcliffe Mount, Leeds LS17 6QW (GB).

(74) Agent: **BAKER, Brettell;** 138 Hagley Road, Edgbaston, Birmingham B16 9PW (GB).

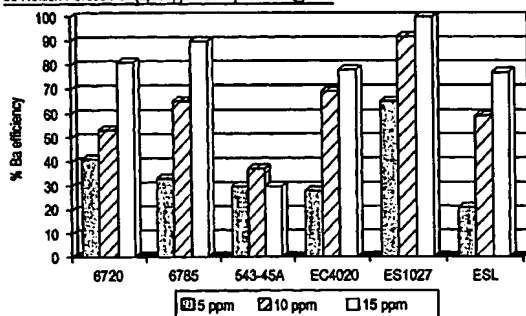
(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH,

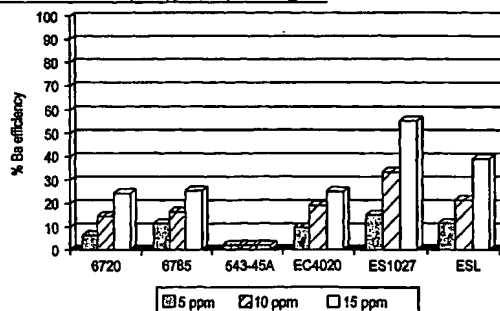
[Continued on next page]

(54) Title: **SCALE INHIBITION IN WATER SYSTEMS**

Barium sulphate inhibition efficiencies after 2hrs  
50 Nelson Forties FW (2,000ppm Ca<sup>2+</sup>): 50 SW @ 50°C



Barium sulphate inhibition efficiencies after 22hrs  
50 Nelson Forties FW (2,000ppm Ca<sup>2+</sup>): 50 SW @ 50°C



(57) Abstract: The present invention relates to use of compositions comprising: (a) a copolymer of an unsaturated phosphonic acid (or salt of such an acid) with an unsaturated sulphonic acid (or salt of such an acid) or an unsaturated carboxylic acid (or salt of such an acid); or (b) a terpolymer of an unsaturated phosphonic acid (or salt of such an acid) with an unsaturated sulphonic acid (or salt of such an acid) and an unsaturated carboxylic acid (or salt of such an acid). These compositions are used to control the formation of scale in water systems.

GM, KI, LS, MW, MZ, NA, SD, SI, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*